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MARKED Substitute Specification

## APPARATUS AND METHOD FOR RECEIVING IDENTICAL BROADCASTING PROGRAM

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

**[0001]** The present invention relates to an apparatus and method for receiving an identical broadcasting program and particularly, to an apparatus and method for receiving an identical broadcasting program ~~for receiving broadcasting signals from a different broadcasting medium~~ using channel information of multiplex broadcasting media.

#### 2. Description of the Background Art

**[0002]** Generally, most broadcasting ~~media~~ wast techniques involve a method to receive broadcasting signals using a ground wave. However, currently, ~~the broadcasting media became to receive broadcasting signals~~ can be received using various multiplex broadcasting media such as a satellite, cable and the like as well as the ground wave.

**[0003]** To receive the broadcasting signals outputted through the multiplex media, the user should buy a receiving device for an exclusive use of the media. In case of the conventional receiving device for receiving the ground wave (one type of broadcasting medium), the user could watch the broadcasting program if the user has a set-top box for ~~an~~ the exclusive use of the corresponding

~~medi~~medium.

**[0004]** The broadcasting outputted through the multiplex media can be on the air by broadcasting a program produced independently, performing mandatory rebroadcasting or contract rebroadcasting a program broadcasted through the ground wave already and broadcasting simultaneously according to the characteristic of the channel. Therefore, the user can watch a program selecting a particular broadcasting medium with good transmission status of broadcasting signals and a channel of a medium which broadcasts necessary information.

**[0005]** However, the broadcasting receiving device for an exceptional use of the broadcasting medium (not shown) or broadcasting receiving device using the set-top box (not shown) cost much and is aesthetically poor since the broadcasting receiving device for an exceptional use of the medium and the broadcasting receiving device using the set-top box should be purchased so as to receive the program transmitted through the multiplex media.

**[0006]** On the other hand, the method for receiving broadcasting signals through the multiplex broadcasting media in accordance with the present invention could receive broadcasting signals through the multiplex media. However, the broadcasting program displayed to the user through a displaying apparatus (~~not shown~~) ~~outputted~~outputs just one channel among various channels of the multiplex broadcasting media and ~~was~~is similar to a method of receiving broadcasting signals from the conventional single broadcasting media. Namely, the user could watch broadcasting programs by pushing a corresponding channel after selecting the ~~medi~~medium in which the preferable program was broadcasted through a remote controller. ~~and accordingly~~Accordingly, there ~~was~~is a disadvantage that the broadcasting signals are not transmitted ~~by~~for a certain

reason ~~while~~during the period the user watches the broadcasting program through a random medium and ~~that~~ the user ~~needs to~~should push channels many times to receive an identical broadcasting program through the ~~media~~medium which transmitted broadcasting signals of high picture and sound quality.

**[0007]** As described above, conventionally, since there were several tens of channels broadcasted through a broadcasting medium, it ~~cost~~costs much time for the user to search a necessary broadcasting program among these channels. Also, in case the broadcasting signals are not transmitted ~~by~~for a certain reason or the user wants to receive an identical broadcasting program ~~through the media~~from a different broadcasting medium which transmitted broadcasting signals of high picture and sound quality while the user watches the broadcasting program through a random medium, the number of channels according to digital broadcasting increases to several tens to hundreds, ~~and accordingly~~Accordingly, it ~~took~~would take much time to search whether there is an identical program in another broadcasting medium ~~as the broadcasting program which~~while the user watches the program ~~at present in another broadcasting media~~.

## SUMMARY OF THE INVENTION

**[0008]** Therefore, an object of the present invention is to provide an apparatus and method for receiving an identical broadcasting program ~~for~~by searching an identical broadcasting program through media which transmit broadcasting signals automatically in case the broadcasting signals are not transmitted by a certain reason or a user wants to receive an identical broadcasting program through the media which transmit broadcasting signals with

high picture and sound quality while the user watches the broadcasting program through a random medium so that the user can watch the identical broadcasting program continuously.

**[0009]**        Another object of the present invention is to provide an apparatus and method for receiving an identical broadcasting program, which address the limitations and disadvantages associated with the background art.

**[0010]**        To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, there is provided a method for receiving an identical broadcasting program in accordance with an embodiment of the present invention, comprising the steps of reading a source ID of a broadcasting program transmitted from broadcasting media, searching whether the broadcasting program having an identical source ID as the source ID is on the air from multiplex media and selecting whether the media would be converted or not by reporting the searching result to the user.

**[0011]**        There is also provided an apparatus for receiving an identical broadcasting program in accordance with an embodiment of the present invention in an apparatus for outputting an image signal or voice signal by receiving broadcasting signal through multiplex broadcasting media, comprising an identical broadcasting program searching unit for searching a channel to which a same broadcasting program as a program of a channel selected by a user and a channel selection unit for selecting a broadcasting signal corresponding to the searched channel.

**[0012]**        The foregoing and other objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of the present invention when taken in conjunction with the

accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0013]** The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

**[0014]** In the drawings:

**[0015]** Figure 1 is a block diagram showing the composition of an apparatus for receiving an identical broadcasting program in accordance with the present invention; and

**[0016]** Figure 2 is a flow chart showing a method for receiving an identical broadcasting program in accordance with the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0017]** Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

**[0018]** Figure 1 is a block diagram showing the composition of an apparatus for receiving an identical broadcasting program in accordance with the present invention.

**[0019]** As shown in Figure 1, the apparatus for receiving the identical broadcasting program comprises a broadcasting signal receiving unit 101 for

receiving a-broadcasting ~~signals~~signals transmitted through a plurality of multiplex broadcasting media; a channel selection unit 102 for selecting a broadcasting signal selected by a user among the received broadcasting signals or selecting a broadcasting program of a channel ~~to which an identical~~carrying a broadcasting program ~~as identical to~~ a broadcasting program in ~~broadcasting signals~~ ~~corresponding to~~of the channel selected by the user from the multiplex media according to a control signal; a demultiplexer 103 for separating image and voice signals in the broadcasting signals of the channel selected by the user or the channel ~~to in~~ which the identical program is received; a decoding unit 104 for outputting the image and voice signals separated by the demultiplexer 103; a channel information database 108 for storing channel information corresponding to the multiplex broadcasting media; an external signal input unit 106 for receiving a channel conversion signal outputted from a remote controller or another input means to receive broadcasting signals which are poor or broadcasting signals having high sound quality or picture quality; an identical broadcasting program searching unit 107 for searching channels ~~to which an identical~~having a broadcasting program corresponding to or identical to the program of the channel selected by a user ~~is transmitted~~ by comparing the channel selected by the user and the channel information stored in the channel information database 108 according to the channel conversion signal<sub>1</sub> and outputting the searched channel information; and a microcomputer 105 for outputting the control signal for converting the channel selected by the user into the searched channel according to the channel conversion signal. Namely For example, therefore, the present invention can search for a channel ~~to which~~having an identical broadcasting program automatically<sub>1</sub> by pushing a media searching button (not shown) of a

remote controller, through media which transmit broadcasting signals automatically in case the user wants to watch the identical broadcasting program through the multiplex media from necessity or wants to search broadcasting media ~~to which~~having an identical program with high picture and sound quality is ~~transmitted~~ while the user watches the identical broadcasting program through the ~~media~~previously-selected medium so that the user can watch the identical broadcasting program continuously as the media are switched.

**[0020]** Hereinafter, the operation of the apparatus for receiving the identical broadcasting program through multiplex media in accordance with the present invention will be described in detail with reference to Figure 2.

**[0021]** Figure 2 is a flow chart showing the method for receiving the identical broadcasting program in accordance with the present invention.

**[0022]** Firstly, the broadcasting signal receiving unit 101 receives a broadcasting signal transmitted through multiplex broadcasting media and outputs the signal to the channel selection unit 102. Here, the broadcasting signal transmitted through the multiplex media is a broadcasting signal received from ground wave, cable, satellite and the like.

**[0023]** The channel selection unit 102 selects the broadcasting signal selected by the user among the received broadcasting signals or selecting a broadcasting program of the channel ~~to which~~having the identical broadcasting program as ~~at the~~ broadcasting program in ~~broadcasting signals~~ corresponding to the channel selected by the user from the multiplex media according to the control signal outputted from the microcomputer 105 and outputs the selected broadcasting program to the demultiplexer 103.

**[0024]** The demultiplexer 103 separates image and voice signals in the

broadcasting signals of the channel selected by the user or the channel to which ~~having~~ the identical program is received and outputs the signals to the decoding unit 104.

**[0025]** The decoding unit 104 decodes the image and voice signals separated by the demultiplexer 103 and outputs the video and audio signals.

**[0026]** On the other hand, the external signal input unit 106 receives the channel conversion signal outputted from a remote controller or another input means to receive broadcasting signals which ~~are~~ may be in poor quality or broadcasting signals having high sound quality or picture quality.

**[0027]** The identical broadcasting program searching unit 107 searches channels to which the ~~identical~~ broadcasting program identical to or corresponding to the program of the channel selected by the user is transmitted by comparing the channel selected by the user and the channel information stored in the channel information database according to the channel conversion signal outputted through the microcomputer 105, and outputs the searched channel information to the microcomputer 105. Namely, when the user starts searching by pushing the multiplex broadcasting media searching button (not shown) of a remote control to watch a broadcasting with high picture and sound quality (S21), the identical ~~broadcasting~~ broadcasting program searching unit 107 reads a source ID of a broadcasting which is currently watched from the channel information of the multiplex media stored in the channel information database 108 (S22) and searches whether there is a broadcasting program having an identical source ID as the source ID by searching the channel information of the multiplex broadcasting media from the channel information database 108 (S23 and S24). Here, ~~the~~ each broadcasting program broadcasted through the multiplex



broadcasting media has a peculiar source ID and since the channel information of the respective media is composed of the additional information (source ID), the identical program broadcasted in the multiplex broadcasting media can be searched. \_Also, the source ID is not changed ~~in~~—even in case a digital broadcasting program of a medium is retransmitted to another ~~mediamedium~~.

**[0028]** At this time, if there is no identical broadcasting program, the microcomputer 105 reports this by displaying a message that there is no identical broadcasting program on a monitor (not shown) (S25). On the other hand, if the identical program is searched, the microcomputer 105 displays the related information (~~mediamedium~~, channel number and the like) on the monitor (not shown) (S26) and if the viewer pushes the selection button (S27), the microcomputer 105 has the viewer receive the broadcasting signal (broadcasting program) immediately by converting channel to the channel of the selected mediamedium using the channel information database of the corresponding ~~mediamedium~~ (S28).

**[0029]** Later, the microcomputer 105 outputs the control signal for converting the channel selected by the user into the searched channel according to the channel conversion signal to the channel selection unit 102. The channel selection unit 102 selects a broadcasting program of the channel ~~to~~—which is identical~~the identical broadcasting program as a broadcasting program in broadcasting signals corresponding to the~~ program of the channel selected by the user from the multiplex media according to the control signal outputted from the microcomputer 105.

**[0030]** As described above, the apparatus and method for receiving the identical broadcasting program has an advantage that the present invention can

search and locate the identical broadcasting program which is broadcasted through the multiplex broadcasting media automatically in case the broadcasting signals are not transmitted ~~by a certain~~ for some reason or the user wants to watch the identical broadcasting program through a different broadcasting medium or ~~the~~ multiplex media or wants to search broadcasting media to which an identical program with high picture and sound quality is transmitted while the user watches the broadcasting program through a random medium so that the user can watch the identical broadcasting program continuously.

**[0031]** Also, the apparatus and method for receiving the identical broadcasting program can search and locate the identical program automatically regardless of the number of ~~the~~ channels so that the user can watch the identical program quickly.

**[0032]** As the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, it should also be understood that the above-described embodiments are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalence of such meets and bounds are therefore intended to be embraced by the appended claims.